NPort® IA5000 Series

1 and 2-port serial device servers for industrial automation

> Versatile socket operation modes, including TCP Server, TCP Client, UDP
> Patented ADDC® (automatic data direction control) for 2-wire and 4-wire RS-485
> Cascading Ethernet ports for easy wiring (applies only to RJ45 connectors)
> Redundant DC power inputs
> Warning by relay output and e-mail
> 10/100BaseTX (RJ45) or 100BaseFX (single mode or multi-mode with SC connector)
> IP30-rated housing

The certification logos shown here apply to some or all of the products in this section. Please see the **Specifications** section or Moxa's website for details.

: Overview

NPort® IA device servers provide easy and reliable serial-to-Ethernet connectivity for industrial automation applications. The device servers can connect any serial device to an Ethernet network, and to ensure compatibility with network software, they support a variety of port operation modes, including TCP Server, TCP Client, and UDP. The rock-solid reliability of the NPort® IA device servers makes them an ideal choice for establishing network access to RS-232/422/485 serial devices such as PLCs, sensors, meters, motors, drives, barcode readers, and operator displays. All models are housed in a compact, rugged housing that is DIN-rail mountable.
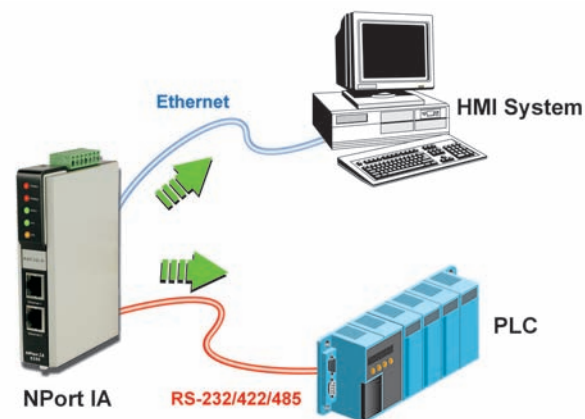
: Cascading Ethernet Ports Make Wiring Easy (10/100BaseTX models only)

The NPort® IA5150 and IA5250 device servers each have two Ethernet ports that can be used as Ethernet switch ports. One port connects directly to the network or server, and the other port can be connected to another NPort® IA device server or another Ethernet device. The dual Ethernet ports help reduce wiring costs by eliminating the need to connect each device to a separate Ethernet switch.
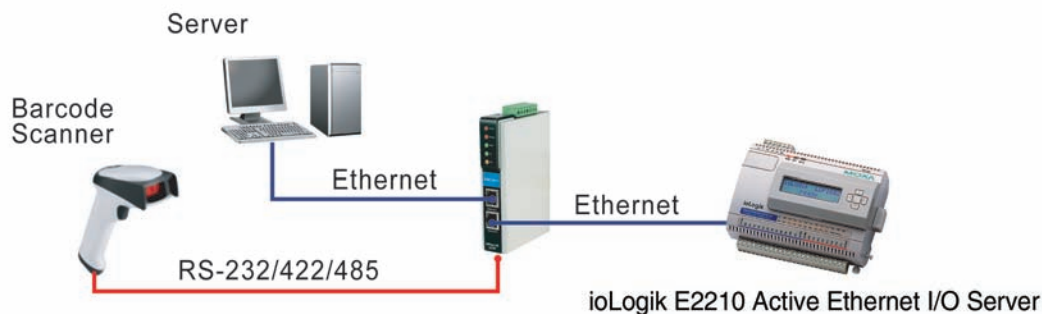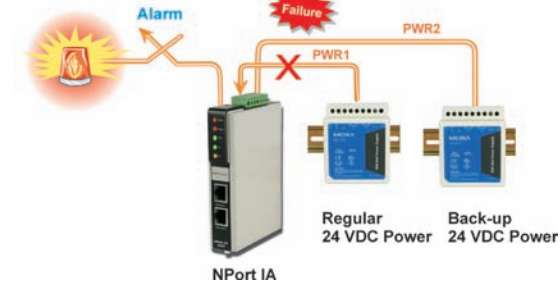
⠆ Redundant Power Inputs

The NPort® IA5000 device servers have two power inputs that can be connected simultaneously to live DC power sources. If one power source fails, the other source takes over automatically. Redundant power inputs help assure non-stop operation of your device server.

Dual Power Inputs

Power Failure Alarm

⠆ Relay Output Warning and E-mail Alerts

The built-in relay output can be used to alert administrators of problems with the Ethernet links or power inputs, or when there is a change in the DCD or DSR serial signals. The web console indicates which Ethernet link or power input has failed, or which serial signal has changed. An e-mail warning can also be issued when an exception is detected. These functions are valuable tools that enable maintenance engineers to react promptly to emergency situations.

⠆ Optical Fiber for Ethernet Communication

The NPort® IA5000 series includes 100BaseFX fiber models that support transmission distances up to 2 km for multi-mode models, and up to 40 km for single-mode models. Optical fiber is well-suited for industrial applications because it is immune to electromagnetic noise and interference. For environments that experience high ground loop voltages, fiber provides the best isolation protection, and because there is no danger of sparking, optical fiber is safer than copper wire to use in hazardous environments.

⠆ Industrial-grade Certification

To ensure safe and reliable operation in industrial environments, the NPort® IA5000 device servers have obtained various industrial certifications, including an IP30 rating for mechanical protection, UL508 safety certification for industrial control equipment, and explosion-safe certifications for hazardous locations. Certifications include UL/cUL Class 1 Division 2 Groups A, B, C, D, and ATEX Class 1 Zone 2.

⠆ Appearance
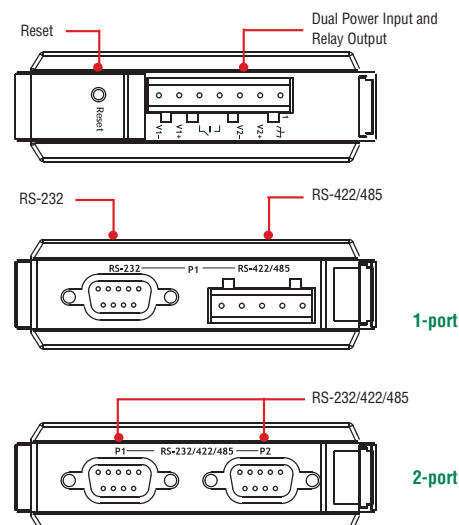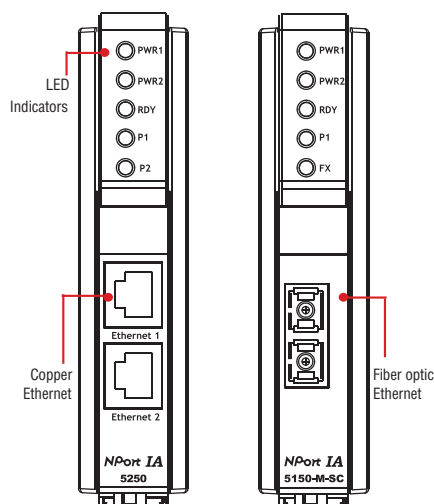
: Specifications

Ethernet Interface (NPort® IA5150/5150I/5250)

Number of Ports: 2

Speed: 10/100 Mbps, Auto MDI/MDIX

Connector: 8-pin RJ45

Magnetic Isolation Protection: 1.5 KV built-in

Optical Fiber Interface (NPort® IA5150-M-SC/5150I-M-SC/5150-S-SC/5150I-S-SC)

Fiber Port: 100 BaseFX, SC connector

Distance:
Multi mode: 0 to 2 km, 1310 nm (62.5/125 μm, 500 MHz*km)
Single mode: 0 to 40 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))

Min. TX Output: -20 dBm (Multi mode), -5 dBm (Single mode)

Max. TX Output: -14 dBm (Multi mode), 0 dBm (Single mode)

Sensitivity: -34 to -30 dBm (Multi mode), -36 to -32 dBm (Single mode)

Serial Interface

Number of Ports:
NPort® IA5150: 1
NPort® IA5250: 2

Serial Standards: RS-232/422/485

Connectors:
NPort® IA5150: 8-pin RJ45 for RS-232, Terminal Block for RS-422/485
NPort® IA5250: Terminal Block (5 terminals per port)

ESD Protection: 15 KV for all signals

Optical Isolation Protection: 2 KV (NPort® IA5150I, NPort® 5150I-M-SC, NPort® 5150I-S-SC)

RS-485 Data Direction Control: ADDC® (automatic data direction control)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS (RS-232 only), XON/XOFF
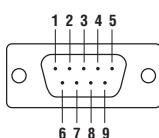
Baudrate: 110 bps to 230.4 Kbps

Serial Signals

RS-232:
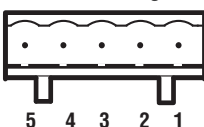NPort® IA5150: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
NPort® IA5250: TxD, RxD, RTS, CTS, GND

RS-422: Tx+, Tx-, Rx+, Rx-, GND

RS-485-4w: Tx+, Tx-, Rx+, Rx-, GND

RS-485-2w: Data+, Data-, GND

Software

Network Protocols: ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, Rtelnet, DNS, SNMP, HTTP, SMTP, SNTP

Configuration Options: Web Console, Serial Console, Telnet Console, Windows Utility

Driver Support: Windows Real COM driver (for Windows 95, 98, ME, NT, 2000, XP, 2003, Vista, XP x64, 2003 x64, Vista x64), Linux Real TTY driver, Fixed TTY driver (for SCO Unix, SCO OpenServer, UnixWare 7, UnixWare 2.1, SVR 4.2, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i)

Physical Characteristics

Housing: IP30 protection

Weight:
NPort® IA5150: 360 g
NPort® IA5250: 380 g

Dimensions: 29 x 89.2 x 118.5 mm (0.82 x 3.51 x 4.57 in)

Environmental Limits

Operating Temperature:
NPort® IA5150/5250: 0 to 55°C (32 to 131°F)
NPort® IA5150-T/5250-T: -40 to 75°C (-40 to 167°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption:
NPort® IA5150: 360 mA @ 12V max.
NPort® IA5150I: 420 mA @ 12V max.
NPort® IA5250: 440 mA @ 12V max.
NPort® IA5150-S-SC: 470 mA @ 12V max.
NPort® IA5150I-S-SC: 490 mA @ 12V max.
NPort® IA5150-M-SC: 500 mA @ 12V max.
NPort® IA5150I-M-SC: 510 mA @ 12V max.

Regulatory Approvals

Safety: UL60950 (E212360), UL 508, CSA C22.2 No. 60950, EN60950

Hazardous Location: UL/cUL Class I, Division 2, Groups A, B, C and D (E238559) (pending)

ATEX: Class I, Zone 2, EEx nC IIC (03CA24537) (pending)

Marine: DNV

EMI: FCC Part 15, CISPR (EN55022) Class A

EMS:
EN61000-4-2 (ESD), Level 3
EN61000-4-3 (RS), Level 3
EN61000-4-4 (EFT), Level 4
EN61000-4-5 (Surge), Level 3
EN61000-4-6 (CS), Level 3
EN61000-4-8
EN61000-4-11
EN61000-4-12

Shock: IEC60068-2-27

Freefall: IEC60068-2-32

Vibration: IEC60068-2-6

Dust-proof: IP30

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Pin Assignment

RS-232/422/485 DB9 male port

1 2 3 4 5
6 7 8 9

PIN	RS-232	RS-422/RS-485-4w	RS-485-2W
1	DCD	TxD-(A)	–
2	RXD	TxD+(B)	–
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

RS-422/485 Terminal Block Wiring

5 4 3 2 1

PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD+(B)	–
2	TxD-(A)	–
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND

Dimensions

NPort IA5150
NPort IA5150I
NPort IA5250

NPort IA5150I-S-SC
NPort IA5150I-M-SC
NPort IA5150-S-SC
NPort IA5150-M-SC

20.6 mm 29.91 mm
(0.81 in) (1.18 in)

11.5 mm
(0.45 in)

29 mm (1.14 in)

14.5 mm
(0.57 in)

69.5 mm (2.74 in)

20 mm
(0.79 in)

29 mm (1.14 in)

14.5 mm
(0.57 in)

66.6 mm (2.62 in)
79.5 mm (3.13 in)
92.4 mm (3.64 in)

89.2 mm (3.51 in)

118.5 mm (4.67 in)

14.5 mm
(0.57 in)

124.5 mm (4.9 in)

NPort IA5150
NPort IA5150 I
NPort IA5150-S-SC
NPort IA5150-M-SC
NPort IA5150 I -S-SC
NPort IA5150 I -M-SC

25.9 mm   35 mm
(1.02 in)   (1.38 in)

NPort IA5250

25.9 mm   35 mm
(1.02 in)   (1.38 in)

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Serial Device Servers > NPort® IA5000 Series

: Ordering Information

Available Models

NPort® IA5150: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP)

NPort® IA5150-T: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP), wide temperature (-40 to 75°C)

NPort® IA5150I: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP) and 2 KV optical isolation

NPort® IA5150I-T: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP) and 2 KV optical isolation, wide temperature (-40 to 75°C)

NPort® IA5150-M-SC: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) multi-mode fiber (SC connectors) ports

NPort® IA5150-M-SC-T: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) multi-mode fiber (SC connectors) ports, wide temperature (-40 to 75°C)

NPort® IA5150I-M-SC: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) multi-mode fiber (SC connectors) ports and 2 KV optical isolation

NPort® IA5150I-M-SC-T: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) multi-mode fiber (SC connectors) ports and 2 KV optical isolation, wide temperature (-40 to 75°C)

NPort® IA5150-S-SC: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) single-mode fiber (SC connectors) ports

NPort® IA5150-S-SC-T: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) single-mode fiber (SC connectors) ports, wide temperature (-40 to 75°C)

NPort® IA5150I-S-SC: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) single-mode fiber (SC connectors) ports and 2 KV optical isolation

NPort® IA5150I-S-SC-T: 1-port RS-232/422/485 device server with 2 10/100BaseF(X) single-mode fiber (SC connectors) ports and 2 KV optical isolation, wide temperature (-40 to 75°C)

NPort® IA5250: 2-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP)

NPort® IA5250-T: 2-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP), wide temperature (-40 to 75°C)

Optional Accessories (can be purchased separately)

Optical Fiber Patch Cord: See page A-14

Terminal Block for RS-422/485 ports: See page A-7

Power Jack to Terminal Block Cable: See page A-7

Package Checklist

- NPort IA series device server
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card